

Recovery Plan Action Status

Plan Name: Carolina Heelsplitter

Plan Status: Final

Plan Date: 17-Jan-97

Lead Agency: USFWS

Lead Office: Asheville Ecological Services Field Office

(1828)

258-3939)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Carolina heelsplitter (Lasmigona decorata)	1	1.1	Utilize existing legislation and regulations to protect the species and its habitat.	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service, Law Enforcement Division, U.S. Environmental Protection Agency, U.S. Forest Service, U.S. Army Corps of Engineers, State Conservation Agencies	Other: Information and Education	Internal Technical Assistance	This task is continuous and will be necessary and cannot be completed until species is recovered/delisted
Carolina heelsplitter (Lasmigona decorata)	1	1.2	Work with appropriate Federal and State agencies to identify actions that could negatively affect the species and incorporate protective measures into such actions.	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Environmental Protection Agency, U.S. Forest Service, U.S. Army Corps of Engineers, State Conservation Agencies, Natural Resources Conservation Service	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	This task is continuous and will be necessary and cannot be completed until species is recovered/delisted

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Carolina heelsplitter (Lasmigona decorata)	1	1.3.1&1.3.2	Meet with local government officials and business interests and elicit their support for recovery.	Ongoing Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Environmental Protection Agency, U.S. Forest Service, The Nature Conservancy, U.S. Army Corps of Engineers, State Conservation Agencies, Natural Resources Conservation Service	Management: Planning	Internal Field Assistance	<p>This task is continuous until the species is delisted.</p> <p>The Service has been working with Union and Mecklenburg County, other local governments, and NCDWQ to establish protective ordinances, state regulations, management plans, etc. to protect occupied streams from the effects of development and other land use activities.</p> <p>The Service has been working with Lancaster County, SC to establish a Conservation Bank for the Carolina heelsplitter within the county; a Carolina heelsplitter overlay district was approved by Lancaster County Council on April 28, 2008. The overlay district establishes conservation guidelines designed to conserve Carolina heelsplitter in the Sixmile Creek basin and to create a market for Conservation Bank Credits that will help protect heelsplitter outside of Sixmile Creek; in February 2008, a draft Conservation Bank Enabling Agreement for the proposed Carolina heelsplitter Conservation Bank was sent to the Regional Office and the Regional</p>

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										Solicitors office for review.
Carolina heelsplitter (Lasmigona decorata)	2	1.3.3	Develop information and education program and present.	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Forest Service, The Nature Conservancy, State Conservation Agencies	Other: Information and Education	Internal Administrative	Task duration: 1 year to develop, then continuous. Among numerous other outreach efforts, worked with SCDNR, NC State Museum and other partners to develop and publish a SC mussel workbook and key (2004; second printing 2008) as well a smaller "field guide" and electronic versions (2008).
Carolina heelsplitter (Lasmigona decorata)	1	1.4	Encourage establishment of outstanding resource water designations and other protective strategies as a means of protecting the species.	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Environmental Protection Agency, U.S. Forest Service, The Nature Conservancy, U.S. Army Corps of Engineers, State Conservation Agencies, Natural Resources Conservation Service	Management: Habitat Maintenance and Manipulation	Internal Field Assistance	Draft technical support document for development of a site-specific management plan (SSMP) for the protection and recovery of the Goose Creek/Duck Creek population was developed and submitted to the NCDWQ -- SSMP was issued by NCDWQ in 2009.

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Carolina heelsplitter (Lasmigona decorata)	2	1.5	Consider use of land acquisition to protect the species.	Ongoing Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Forest Service, The Nature Conservancy, State Conservation Agencies	Acquisition: Easement	Internal Administrative	On-going efforts with the TNC, local land trusts, NCDOT, and others to acquire easements on streams supporting species; in 2005 the Service provided 2 million dollars to the SCDNR, through a Recovery Land Acquisition grant, to assist in the purchase of lands in the Flat Creek watershed; in 2010, a Conservation Bank in the Flat Creek watershed was established.
Carolina heelsplitter (Lasmigona decorata)	1	2.1&2.2&2.3	Conduct research necessary for species management and recovery; i.e., habitat requirements, biology, and threat analyses.	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Forest Service, State Conservation Agencies	Management: General	Contract	In the fall of 2006, initiated fish host studies with individuals rescued from Duck Creek due to severe drought conditions; were forced to rescue additional individuals from Duck & Sixmile Creek, NC (2007 & 2008), and unnamed trib. to Bull Run Creek, SC (2008) that will be used for life history, controlled propagation, and population augmentation/reintroduction. 2009 - identified suitable fish hosts; 2007; initiated genetic study of surviving populations.

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Carolina heelsplitter (Lasmigona decorata)	3	2.4	Based on biological and threat analyses, investigate need for management and implement where needed.	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Environmental Protection Agency, U.S. Forest Service, U.S. Army Corps of Engineers, State Conservation Agencies, Natural Resources Conservation Service	Acquisition	Contract	Priority 1, 2, or 3, depending on result of 2.1, 2.2, and 2.3. continuous until species is delisted
Carolina heelsplitter (Lasmigona decorata)	2	2.5	Determine number of individuals required to maintain viable population.	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service, Law Enforcement Division, Contract	Research: Population Surveys	Contract	
Carolina heelsplitter (Lasmigona decorata)	2	3	Search for additional populations and suitable habitat for reintroductions.	Ongoing Current	FY 2007		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Forest Service, State Conservation Agencies, Contract	Research: Population Surveys	Internal Field Assistance	continuous as funding allows; 6 new occurrences have been discovered since listing; Completed surveys of portions of the: Savannah R. system (initiated 2000, completed 2005), Catawba R. system (initiated 2003, completed 2007)Saluda R. system (initiated 2005, completed 2008).

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Carolina heelsplitter (Lasmigona decorata)	2	4	Develop artificial holding and propagation techniques; reintroduce species into historic habitat; and, if needed, augment existing populations.	Ongoing Current	FY 2007		U.S. Fish and Wildlife Service, Ecological Services Division, Contract	Work type not yet selected	Contract	In cooperation with the NCWRC, NC State Univ., and others, initiated fish host studies. Life history studies on-going; initiated threats analysis to identify site(s) for potential reintroduction (2009); initiated genetic evaluation of surviving populations for population augmentation and reintroduction efforts; rescued (from drying streams because of on-going exceptional drought conditions) additional individuals from two populations for holding and propagation for population augmentations/reintroductions (2007); NCWRC and NC State University in cooperation with the Service are holding and conducting controlled propagation of rescued individuals from 3 populations (because of exceptional drought conditions); 2008 provided funding to NCWRC to expand holding and propagation; 2010 working with Orangeburg, SC, NFH to expand their capacity for rescue, holding, and controlled propagation; also initiated threat analysis/land use study to evaluate streams for population reintroduction;

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										2011 - individuals from 3 populations are currently being held and propagated; provided additional funding to expand holding and propagation facilities to allow for holding and propagation of additional populations in danger of becoming extirpated to preserve genetic material and provide individuals for population augmentation/reintroduction.
Carolina heelsplitter (Lasmigona decorata)	2	5	Develop and utilize cryopreservation techniques.	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, Contract	Work type not yet selected	Labor type not yet selected	
Carolina heelsplitter (Lasmigona decorata)	2	6	Develop and implement a monitoring program.	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Forest Service, State Conservation Agencies	Acquisition	Internal Field Assistance	Biennial as personnel and funding allow; 2009 - 2011 assessed effects of 2007-2008 exceptional drought conditions and status of populations.
Carolina heelsplitter (Lasmigona decorata)	3	7	Annually assess recovery program and modify program and plan where required.	Ongoing Current	FY 2007		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Forest Service, State Conservation Agencies	Work type not yet selected	Labor type not yet selected	This task is conducted yearly; initiated 5-year review in 2007